

WHAT IS CLAIMED IS:

1. A method for finding an optimal dip angle in a prescribed environment using an electronic compass containing  
5 a two-axis geomagnetic sensor, comprising the steps of:

a) setting a predetermined azimuth angle indicative of a horizontal status of a geomagnetic sensor to a reference azimuth angle " $\psi_{ref}$ ";

b) if the electronic compass is slightly tilted on the  
10 basis of the reference azimuth angle " $\psi_{ref}$ ", stepwise-increasing a dip angle " $\lambda$ " within a predetermined dip angle search range, and calculating azimuth angles " $\psi_{mi}$ " associated with individual dip angles;

c) comparing the calculated azimuth angles " $\psi_{mi}$ " with  
15 the prescribed reference azimuth angle " $\psi_{ref}$ ", and finding one azimuth angle, which is the closest to the reference azimuth angle " $\psi_{ref}$ ", from among the calculated azimuth angles " $\psi_{mi}$ "; and

d) setting the dip angle " $\lambda$ " applied to the found  
20 azimuth angle to a specific dip angle associated with a corresponding azimuth angle.

2. The method as set forth in claim 1, wherein the step  
(b) for calculating the azimuth angles " $\psi_{mi}$ " includes the  
25 step of:

b1) stepwise-increasing the dip angle one-step at a time within a range from  $-90^{\circ}$  to  $+90^{\circ}$  (i.e., a dip angle search range of approximately " $\pm 90^{\circ}$ ") to calculate azimuth angles associated with individual dip angles.

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3. The method as set forth in claim 1, wherein the step (b) for calculating the azimuth angles " $\psi$  mi" includes the step of:

b2) stepwise-increasing the dip angle by approximately  
10  $1^{\circ}$  within the predetermined dip angle search range, and calculating azimuth angles associated with individual dip angles.

4. The method as set forth in claim 1, wherein the step  
15 (b) for calculating the azimuth angles " $\psi$  mi" includes the step of:

b3) stepwise-increasing the dip angle by approximately  
 $1^{\circ}$  within a range from  $-90^{\circ}$  to  $+90^{\circ}$  (i.e., a dip angle search range of approximately " $\pm 90^{\circ}$ ") to calculate azimuth angles  
20 associated with individual dip angles.